Document made available under the Patent Cooperation Treaty (PCT)

International application number: PCT/FI05/000119

International filing date: 24 February 2005 (24.02.2005)

Document type: Certified copy of priority document

Document details: Country/Office: FI
Number: 20040296
Filing date: 25 February 2004 (25.02.2004)

Date of receipt at the International Bureau: 23 May 2005 (23.05.2005)

Remark: Priority document submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b)

World Intellectual Property Organization (WIPO) - Geneva, Switzerland
Organisation Mondiale de la Propriété Intellectuelle (OMPI) - Genève, Suisse

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Patenttihakemus nro Patent application no	**20040296**
Tekemispäivä Filing date	**25.02.2004**
Kansainvälinen luokka International class	**H04Q**
Keksinnön nimitys Title of invention	**"A method and an apparatus for requesting a service in a network"** **(Menetelmä ja laite palvelun pyytämiseksi verkossa)**

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Maksu 50 €
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A Method and an Apparatus for Requesting a Service in a Network

Field of the invention

The present invention relates to teleinformatic systems and more particularly to a method and apparatus of requesting a service in the teleinformatic system.

Background of the invention

A user using a teleinformatic system, the system pertaining to information technology, usually has some objective. This objective can relate e.g. to a working duty or to a need for communicating with other users.

One of the main problems associated with the prior art teleinformatic systems is how the user can reach his objective. As more and more functionality, including external services, is available from devices, the problem has been getting worse. This problem has been tried to solve by providing possibilities to personalize user interfaces of teleinformatic equipment like mobile phones. The user interface of the mobile phone can provide quick menus or one-touch functions, whereby, when pressing a key of the mobile phone long enough, some function for the objective is directly reached. Both the key and the function have typically been settable by the user.

However, there are also problems related to personalized user interfaces like the above described quick menus or one-touch functions. The use of that kind of personalized user interface requires remembering of functions related to the menus and keys. Furthermore, the setting or definitions of the functions requires knowledge on how to program the functions. Also the user interface is typically restricted in many relations, e.g. there is a limited number of keys in the mobile phone, and menu hierarchy is hard to alter in reasonable way. Currently, there is no easy to use and efficient way for user to express arbitrary objective and then reach service(s) being of use for the realization of the expressed objective.

Brief disclosure of the invention

An object of the present invention is thus to provide a method and an apparatus for implementing the method so as to solve the above problems. The objects of the invention are achieved by a method and an arrangement, which are characterized by what is stated in the independent claims. The pre-

ferred embodiments of the invention are disclosed in the dependent claims.

The invention is based on the idea of the method and apparatus:

- maintaining a verb list comprising several verbs;
- maintaining an object part list comprising several object parts;
- maintaining a service list indicating several services;
- maintaining a first association list comprising several first associations, each of which associates one verb in the verb list and one object part in the object part list;
- maintaining a second association list comprising several second associations, each of which associates one service in the service list and one first association;
- in response to receiving a beginning of a user input, selecting verbs from said verb list, such that the selected verbs match said beginning of the user input, and displaying the selected verbs to the user;
- selecting object parts such that each selected object part has an association with the user-accepted verb in the first association list, and displaying the selected object parts to the user;
- selecting services such that each selected service has an association with the combination formed by the user-accepted verb and the user-accepted object part, and displaying the selected services to the user;
- in response to receiving an acceptance of a service from the user, requesting the user-accepted service via the network.

An advantage of the method and arrangement of the invention and its embodiments is that the user of the teleinformatic system can rapidly, easily and reliably reach his objective.

Brief description of the drawings

In the following the invention will be described in greater detail by means of preferred embodiments with reference to the accompanying drawings, in which

Figure 1 is a system diagram illustrating the important components for the invention and its embodiments;

Figure 2 describes possible associations of different parts of objective statements;

Figure 3 describes a structure of objective statement and the service pair;

Figure 4 is a signal chart showing how to reach the service based on the objective statement;

Figures 5A and 5B show different views of the user interface when establishing the objective statement;

Figure 6 shows a list of objective statements;

Figure 7 shows a flowchart of functional logic of the invention and its embodiments; and

Figure 8 shows a more detailed example of possible implementation of getting user input.

Detailed description of the invention

The invention and its embodiments relate to a method and an apparatus for requesting a service in a network. To reach the service a user has to define the objective statement comprising of a verb as a first part of the objective statement and possibly one or more object parts as further parts of the objective statement. With the help of the objective statements the user can reach one or more services. A list of verbs comprising several verbs, a list of object parts comprising several object parts, a service list indicating several services, and associations of verbs, object parts and services can be centrally or in a distributed manner maintained in one or more of e.g. the following elements (referrals to Figure 1): a user equipment UE1, UE2, UE3, a mediator element MED, a database DB1, DB2, a service provider element SP1, SP2, or an element of communication network CN1, CN2.

Different method steps and maintaining of one or more lists according to the invention and its embodiments can be implemented by databases and/or program structures and/or data structures and/or programs. Examples of data structures are given e.g. in Figures 5A and 5B. Figure 7 gives an example of the flowchart that can be implemented by the computer program.

The apparatus of the invention and its embodiments can be e.g. in user equipment. This has the advantage that no connection to the network is needed when the service is being established. Also the delays of accessing databases can be avoided.

The apparatus of the invention and its embodiments can also be in a network element, e.g. in a mediator element. This has the advantage that a user equipment can thus possess less resources, e.g. less memory for establishing the service. Another advantage is that many users can use the same apparatus via a communications network, e.g. via a packet switched network.

Users using the apparatus via the network can belong to a group having group settings and possibly their own personal settings.

Figure 1 is a system diagram illustrating the important components for the invention and its embodiments. In the teleinformatic system there can be one or more mediators MED. The purpose of the mediator is to obtain, collect and mediate information. It can obtain or collect information e.g. from users using a user equipment UE1, UE2, UE3, the users being registered to the mediator, from service providers SP1, SP2 and from other mediators. The mediator can mediate information e.g. to its users, to third parties and to other mediators. A part of the functionality of the mediator can be transferred to the user equipment.

The form of the information obtained, collected and mediated can be e.g. links between objective statements and services associated to them, information on choices made by the users, and grading of objective statements and/or services and their relations by users. The mediator can use the information to define weight values for objective statements, parts of objective statements, namely verbs and object parts, services, and second associations i.e. objective statement – service pairs. The mediator can also convey information to other mediators e.g. on choices of services that it has obtained from the other mediators.

Mediators can also organise said information. This organisation can be based e.g. on probabilities that the users or clustered user groups need the information when expressing objective statements and accessing services.

These probabilities can be at least partially based on the number, i.e. the frequencies, of the use of the information. Frequency of use information is easily interpreted as probabilities by e.g. calculating proportions of absolute frequencies, i.e. relative frequencies, or using Bayesian formula. Also other more complex probability based calculations using the frequency of use information can be used. This probability information can be used to update dynamically the weights that define ranking, i.e. the order of verbs, object parts, services, or other selectable-parts and associations when offered to the user. Selectable-part can be defined to mean any text segment that user can select from screen and include as his input. Thus selectable-part can be e.g. textual presentation of verb, object part or service, or part of textual presentation, i.e. word(s) of object part currently selectable on the screen.

The mediator can also use the information to form structures be-

tween objective statements based on users' choices. The structures can be e.g. similitude-, sequential-, top- and sub-relations between objective statements. Similar structures can also be formed between verbs and/or object parts. These structures can be used to alter the above-mentioned probabilities of use and/or initialize information associated to new objective statements based on their relation(s) to existing objective statements.

Different service providers and mediators can constitute one network or many networks. The mediator MED can e.g. communicate with user equipment UE1, UE2, UE3 via the first communications network CN1 and communicate with service providers SP1, SP2 and other mediators connected to the second communications network CN2 via that second communications network CN2. The communications networks CN1, CN2 can also be one and the same communications network. Service providers SP1, SP2 can be organisations that have responsibility of at least one service, its updating and functionality. When the service provider connects to the system, it can give information on its identification and available services to the mediator. New service can also be provided via Internet and found e.g. via Internet search engine. The service provider and/or the mediator and/or one user can associate this new service to the objective statement. After this the user can select the service that has been connected to the objective statement.

The user equipment UE1, UE2, UE3 can be whatever device, which allow the user to access services. The user equipment of the invention and its embodiments can be equipped with a user interface UI that can be used to produce and/or choose the objective statement and the database. The database DB1 that can maintain information on at least the objectives the user most probably has and services linked to the corresponding objective statements can be in the user equipment. Alternatively, to be able to access the database DB1 rapidly, the database can be located e.g. in Bluetooth network, in WLAN (Wireless Local Area Network) network or in LAN (Local Area Network) network.

The databases DB1, DB2 are entities where data has been/can be collected. Data in the database can relate to a specific target area, e.g. to objectives and services. The database can be used and updated by one or more applications.

To reach the service the user has to define first the objective statement e.g. in the user interface UI. Figure 2 describes how different parts of ob-

jective statements are possibly associated to each other.

According to the invention and its embodiments the objective statement comprises of two parts: The first part, which is obligatory and which is always a verb and the second part, meaning a combination of one or more so-called object parts. There can be a distinction between independent object parts and dependent object parts. Independent object parts can be those object parts that can be used by themselves after expression of verb to form understandable objective statements. All other object parts, namely those object parts that are used only in conjunction with some other object part(s), can be said to be dependent object parts. In Figure 2 there are shown two verbs 2-2, 2-4. Each of them is related to one or more object parts, of which some are common to both verbs and of which some relate only to one or the other verb. Thus the first verb 2-2 relates to three object parts 2-6, 2-8, 2-12 and the second verb relates to two object parts 2-6, 2-10. When the user has selected the verb and the object part(s), he has selected the whole objective statement.

In practice, as will be seen in the following, at the beginning of requesting a service some verbs can be presented to the user in the user interface. The user can select one of these 2-2, 2-4 or scroll further the other verbs. The verb can be selected e.g. by a key or a pointer device like a mouse, a pen or a finger. Furthermore, the verbs can be presented in a ranking order so that the verb 2-2 with a higher ranking can be presented before the verb 2-4 with a lower ranking. The search of verbs can also be incremental search so that those verbs are firstly presented that match the beginning of the letters inputted by the user. To make it easier for the user to use the incremental search the starting part of the verb can be highlighted e.g. by underlining or bolding the searched letter(s). The object part of objective statements can also be shown in connection to the verbs. It is also possible that one or more services that have association(s) with the first and/or the second part of the objective statement are presented while the objective statement is entered and/or showed.

In one embodiment, when the user has selected the verb, the object part 2-6, 2-8, 2-10, 2-12 of the objective statement can be presented in ranking order so that the object parts 2-6, 2-8 with higher weights, ranking can be presented before those object parts 2-10, 2-12 with lower weights, ranking.

The object parts can be restricted to parts, which have association from the verb selected by the user. If these object parts come to the end of the

list of object parts also other object parts can be presented and selected. In this case, the independent object parts can be offered first and if these come to an end, dependent object parts can be offered. Also in this case those object parts can be presented that match the beginning of the letter(s) inputted by the user. To make it easier for the user to use the incremental search also the beginning part of the object part can be highlighted e.g. by underlining or bolding the searched letter(s). Later it is shown how object parts can be offered in such order that the expressed objective statement will most probably be intelligible. It must be noted that the input does not inevitably mean one character in the input but can also means a plurality of possible characters.

The ranking can be partially dynamic e.g. according to above-mentioned weights, but also partially static in order to support user routines. The change between static and dynamic ranking can be made depended e.g. on user preference-settings, usage patterns etc. The user can e.g. set that the certain service for the certain objective statement will always be ranked first or among few first ones.

Different screens like a list screen or a spiral are suitable for this function. The screen can be any user interface where texts to be chosen can be presented so that higher ranked parts can be presented before lower ranked parts, i.e. the screen supports selecting of higher priority text elements more easily. In the spiral screen words moves spiral like. The screen supports the function of the dynamic of the system in the direction where users on average use existing objective statements. This has the advantage that a new objective statement is more often created based on already existing objective statement by users and thus the new objective statement can "inherit" the list of services from the existing objective statement that has same beginning.

The invention and its embodiments are based on the fact that many if not all objectives can be expressed such that first a verb is expressed and second the rest of the objective is expressed. This makes it possible to restrict the form of expressing objectives, thus restricting the number of possible inputs, without loosing naturalness of expressing or naturalness of language. Because the number of probably used verbs in objective statement is likely to be vastly smaller compared to the number of probably used substantives, the verb can be expressed rapidly, especially by using incremental search. After the verb has been accepted, the number of probably used next words, i.e. the object part, collapses and thus they can in general also be expressed quite

rapidly.

As the information is collected from large group of users, this makes it possible to collect and maintain a comprehensive enough lists of objective statements and their associations with services so that users can generally find a service matching their objective via the objective statement that is available to them according to their own intuition.

Combined with the ranking of user selectable parts of objective statements by their probability of being suitable for the user this means that the users will usually find the suitable objective statement fast, even if it were not exactly the same the user had in mind, and thus the right service(s) for reaching their objective. Moreover, the fact that system facilitates the use of existing objective statements means that more frequently information for often-needed objectives will be collected and thus the ranking of services will be based on more data. Thus the acceptance of suitable objective statement and service can usually be made via incremental search and selection, is both fast and easy and requires practically no remembering from the user.

Another advantage of facilitating the selection of parts of objective statement with ranking is that new objective statements expressed by the users are most likely made by refining an already existing objective statement after the user has not found the objective statement that would match his/her objective, to select. This is beneficial, because it means that information from those objective statements based on which new objective statements are created can be directly used as initializing the information for new objective statement e.g. via forming similitude-relations between the new and existing objective statements. This way services can be associated to a new objective statement.

In other words, the problem of finding the service can be solved by combining the objective-oriented user interface solution with collective information from many users. This can be further aided by giving to service providers, third parties and other users efficient ways of making their own services reachable for others via the same user interface, as will be discussed later.

Figure 6 shows a list of objective statements. The column 6-2 presents an exemplanary verb list comprising several different verbs (Publish, Quit, Start, Pull, Push, Stuck) that can be directly chosen. The columns 6-4 and 6-6 present two object part lists comprising several object parts for the verbs. A service list indicating several services is not presented in Figure 6.

In figure 6, the list presented in column 6-4 comprises of independent object parts and the lists presented in column 6-6 comprises of dependent object parts.

Mediator can choose to accept object part to be independent object part only after some criteria has been fulfilled, like reviewing by trusted person (e.g. an employee/a user) or more than one user using the object part by itself after a verb.

One verb in the verb list and one or more object parts in the object part list(s) can be associated and a first association list comprising these several first associations can be established. It is thus possible to "Publish photos of last Christmas", to "Publish text", or to "Publish an invitation of birthday party" by selecting and including as user input suitable verb and object part(s), without further user input.

Figure 3 describes a possible structure of an objective statement 3-10 and a service 3-14 formed objective statement – service pair 3-18. The objective statement comprises at least two parts. The first part of the objective statement can be defined as a verb 3-2. Technically defined the verb can be a string, and the user can input an individual string that is used in the user interface like the verb. Alternatively, the first part of the objective statement does not necessary have to be a grammar like verb, but this rule can be deliberately broken when the term can also be a term added by the user to the list of terms in order to personalize his/her user interface or used by authorized service provider to e.g. promote interest, as discussed later. Also other authorized parties can sometimes use some other word than the verb in this position, e.g. for advertising purposes.

A way of emphasizing selectable parts is to promote them. The promotion of selectable-parts can be defined as temporarily raising its ranking. The promotion can be time dependent or continue until some event occurs like e.g. user uses the promoted selectable-part. The promoted selectable-part can be emphasized some how, e.g. by underlining it when offered to the user. When objective statement is said to be promoted it means that all selectable-parts of it, namely verb and object part(s) are promoted. When objective statement – service pair is said to be promoted it can mean that also said service is promoted.

At least one part 3-2, 3-6 of the objective statement can have a weight value 3-4, 3-8, defining e.g. the ranking i.e. in which order parts of the

objective statements are presented in the user interface UI. Also the objective statement 3-10 can be weighted 3-12.

Weight 3-4 which is associated to the verb 3-2 can be used to tell the ranking of the verb among other verbs. Weight 3-12 which is associated to the objective statement 3-10 can be used to tell the ranking of the object part when the verb 3-2 has been accepted and there exists an association from the verb to the object part 3-6. Weight 3-8 which is associated to the object part 3-6 can be used to tell the ranking of the object part among those object parts that are not associated with the verb 3-2, in the case that object parts that are associated with the verb 3-2 have run out.

Weight 3-20 is associated with the objective statement – service pair 3-18 and can be used to tell the ranking of the service 3-14 when the objective statement 3-10 has been accepted and there exists an association from the objective statement to the service 3-14. Weight 3-16 is associated with the service 3-14 and can be used to rank service among other services in the case when no or only little frequency of use information for objective statement – service pair 3-18 is available and/or the services are associated to objective statement via automated search based e.g. on service description.

One possibility for calculating the weights is to use the overall usage frequency of users usage of the objective statements, verbs, object parts, services and objective statement – service pairs for estimating the probability that they are used in different stages of the process. Then weight 3-4 for verb can be calculated as frequency of overall usage of said verb. Weight 3-12 for objective statement can be calculated as frequency of overall usage of said objective statement. Weight 3-8 for object part can be calculated as overall usage frequency of said object part. Weight 3-20 for objective statement – service pair can be calculated as overall usage frequency of said objective statement – service pair. Weight 3-16 for service can be calculated as overall usage frequency of said service.

It should be noted that "usage" can be defined to mean not only acceptance of some selectable-part, but also e.g. the acceptance of whole objective statement – service pair can be required prior accepting the information concerning one selectable-part contained in the pair. Or on the contrary, e.g. just expressing object part without accepting the whole objective statement can be made to contribute to the usage frequency of said object part. In the case of object parts, some object part can be contained in larger object part. In this

case the containing object part(s) can be considered also be used when the larger object part is used. These "usages" can be recorded as with lower contribution by e.g. adding the said usage/expression of object part with <1.0 value to the sum of overall usage times.

While absolute frequencies are sufficient for comparison and ranking between similar items, relative frequencies can be preferred as they have direct probability interpretation, which helps to maintain the information, especially in the case of multiple mediators. Technically relative frequencies can be implemented e.g. as floats between zero and one or integers with known divider for scaling. Also other values calculated from the usage information can be used, e.g. the Bayesian formula can be used besides relative frequency, time-window for accepting given information or some other method to emphasize more recent usage information over older one can be used.

The usage frequency information is often enough for achieving good results for user to be able to call a service matching his objective with minimal effort. However, because there exists numerous objectives, where the ranking of most suitable services should depend on the current situation of the user, information about the situations at the time of acceptance can be used to make the prediction of most suitable service more accurate.

Situation can be characterized by variables, like e.g. location of the user/device at the time of acceptance and this information can be recorded along usage information. The weights can be separately calculated to e.g. different device types, different user groups or different users. Thus the weights can be made more personalized and suited to the situation at hand. With modelling techniques like Bayesian networks or Minimum Description Length (MDL) methods, same effect can be achieved by enriching the information with above mentioned recorded information, e.g. information about user group/class, device type, or more situational variables like location, time and/or class of current social happening. This information can be fed alongside the usage information to the model. The model's output can then be used instead or in addition to frequency values to determine the probabilities of selectable-parts being used, and these probabilities translated to weights.

A combination of one or more of object parts 3-6 (Figure 3), 6-4, 6-6 (Figure 6) with the first part 3-2 of the objective statement 3-10 forms an understandable objective for the users. The second part of the objective statement can also be technically a string. Instead of comprising verb and object

part(s), the objective statement can also comprise only of the verb, if the last, object part is an empty string. The objective statement can be in whatever case like in passive or in imperative. The objective statement can also be presented prior to or after of some standard phrase like "My goal is to" or "I would like to". When presenting the information in textual form to the user, the order of presentation can be depended of the language and chosen case, i.e. if the objective statement is e.g. in imperative or passive. For example the English sentence "I'd like to drink coffee" could be expressed in German "Ich möchte Kaffee trinken", where the verb is presented later than the object part. However, it can still be required for the user that the verb is expressed before object part i.e. in this example the input can be acquired in sequence where the verb "trinken" is expressed first and then the object part "Kaffee", "Ich möchte" being a constant string attached to the sentence when it is possibly viewed to the user as whole, to support his cognition.

The form of the objective statement appears to be somewhat similar to regular commands used e.g. on computers' command prompt. However, the objective statement does not unambiguously define the service to be effected, but helps the user to reach the services that most probably help the user to receive his objective(s). Although the form of the objective statement is restricted in the manner described above, the form is still much more free compared to commands currently on use. Furthermore, many different objective statements can lead to same services, a property not possible by prior art commands.

The service can be defined to mean whatever internal or external service of the apparatus, which can be connected to the existing objective statement. The service can be accessed e.g. by URI (uniform resource identifier), which can be URL (uniform resource locator) information, other kind of WWW-address (World Wide Web), or telephone number of the service. Thus services can mean different physical services on different physical layers. Examples of internal services are setting the date and time of mobile phone, sending a short message, setting the apparatus to remind the user at the certain moment according to the PDA calendar application. Examples of external services are a location based map service provided by the operator, a buying and selling service of an e-shop in the Internet. The important thing is that there is an identification to reach the service when the user has inputted the objective statement related to the service.

Furthermore a basic-service can be defined to mean the service reachable by every objective statement, although the objective statement would be new in the system and without association to any services. A common service request can be defined to mean a basic-service of which help the user can find the service suitable to the objective statement with the help of a third party.

One possibility to use the common service request is the situation, when e.g. the user is not satisfied with the service(s) associated to the objective statement. Then he can send a common service request to at least one mediator for mediation to other users or other third parties. These third parties can then associate the sent objective statement with service(s), and after that information of associations can be maintained at mediator and means for reaching the service(s) can be mediated to the user. The mediator can hide the information about the user and third parties thus protecting their privacy. Further, third parties can associate a text or spoken message with the objective statement and send it to the mediator, after which the mediator can associate the delivery of the message as a service for also other users' service requests with same objective statement. Reward for making the associations can be given.

The element 3-22 in Figure 3 describes grading given by at least one user. He may have graded e.g. the service, the objective statement related to the service or the association between the verb and the second part of the objective statement. This grading can be used to alter the above-mentioned weights.

There can be many ways to associate objective statements to services and thus form a second association, i.e. objective statement – service pair. One way is via common service requests mentioned above. The second one is when the user expresses the objective statement and the way to reach the service, or vice versa. The third one is the situation when the service is accessed in an application and the user expresses the objective statement and the way to reach the service is obtained via the interface provided by the application.

An example of the second way is when the user enters in connection with the expression of the objective statement an address of WWW-page or WWW-service or the URI-address needed to access the WWW-service. An example of the third way is when WWW-browser shows a WWW-page, the

user expresses the objective statement, and the delivery of said WWW-page is associated as service with said objective statement. The linking information made by the user can be provided to mediators for mediating to other users. If the user provides this information, he can be awarded/rewarded.

Another basic-service, service-offer, can be defined as user expressing objective statement as usual and associating it to a service. By using default service descriptions, which e.g. give user's contact information and textual description about the service offered, this way anyone using the system can with minimal effort offer services to other users. By restricting the number of receivers e.g. to those, who have allowed the user to promote objectives on their UI, the invention and its embodiments can also be used as a new kind of personal communication tool.

Figure 4 is a signal chart of one embodiment of the invention showing how to reach the service based on the objective statement. In step 4-1 the user of user equipment UE3 establishes the objective statement, and in step 4-2 the objective statement is transmitted to the mediator MED. On the basis of the objective statement the mediator retrieves 4-4, 4-6 from the database DB2 one or more services that has association(s) to the objective statement. In step 4-7 the mediator connects the service with the objective statement and in step 4-8 the objective statement-service pair is provided for the user. In this step also a service description can be provided for the user. The service description can comprise the information of how to reach the service, and situational information about when the service is most suitable for use, like e.g. time or location dependency. Further, the service description can also comprise a form, which user can fill and the filled information can be sent with the service request to enable, enhance or modify the service functionality. The form can technically be e.g. HTML-form (HTML, Hyper Text Markup Language), XML (Extension Markup Language) form like World Wide Web Consortium Xform, or the form can be implemented as Java applet or Java midlet. Yet another possibility is that the form can be implemented as fields and software on the device that can understand the structure of the fields.

In case of a chargeable service also the charge of the service can be communicated to the user. The service description can also include information imposing that the service will be called without user acceptance. In this case some authorization mechanism can be used, e.g. the user can allow this via preference-settings.

The user can accept the pair and the possible charge and he or she can convey his or hers acceptance to MED element in step 4-10. After this in step 4-12 the mediator can communicate with the service provider element SP1, in which case the service provider SP1 can in step 4-13 retrieve the service and the service can be delivered to the user in step 4-14. Alternatively, if the means for accessing the service are conveyed e.g. in service description to the user device in step 4-8, steps 4-10 and 4-12 can be replaced with single step of calling the service directly from user device without mediator. In this case however, the information that user called the service with said objective statement should be conveyed to the mediator at the same or later time.

Any information, especially personal information, like names, addresses and telephone numbers, can be filtered out from the objective statements e.g. before step 4-2. This is particularly important when the objective statement is mentioned for the first time, i.e. prior to acceptance the objective statement to the system, and/or when personal information relates to private persons in comparison to public figures. One method of this is to ask for the user, who communicates a new objective statement, whether this objective statement and/or what information thereof can be delivered to the mediator(s) and other users. As another method an automated filtering system, e.g. in the mediator unit, can filter information based on predetermined conditions.

It is also possible for a user to send a remove information request(s) to a person authorized to administrate the maintained information, e.g. to remove information that is not meant to be on the list, which is confidential or not decent to be removed.

However, some personal information, like names of public figures, can be maintained and thus used in objective statements. This can be done e.g. by maintaining two lists of names: A first list including all names and nicknames and a second list including all names of public figures. When the objective statement is handled, the name comprised in the objective statement is compared to both lists. If the name is on the list of public figures, it can be accepted for mediation to other users. Thus e.g. objective statement "Go to Bruce Springsteen's concert" can be accepted for mediation, if "Bruce Springsteen" is on the list of public figures, but "Have lunch with Michael Watts" will not be accepted if the name "Michael Watts" is not in the list of public figures and either "Michael" or "Watts" or both are recognized as private names. Another possibility is that only surnames are filtered.

Because lists of closed user group mediators and lists of public user group mediators can have different filtering purposes or objectives, all mediators can check from where objective statements have been obtained. This checking can be based e.g. on confidentiality information comprised in objective statements.

To use confidential information mediators can be divided into different groups, e.g. to personal mediators that can handle private information of one user, closed user group mediators that can handle private information of one closed user group and public user group mediators. Each of these groups can have its own confidence classification. Also objective statements can have their confidence classification. Thus, information of objective statements can only be delivered between specified groups or can be delivered to mediators whose confidence classification is higher than that of objective statements.

In Figure 7 one embodiment of the invention is shown by a flowchart. The figure explains innovation's capability of giving the users uninhibited possibilities to express objective statements while still keeping the objective statements that are offered to users intelligible in general. It should be understood that the flowchart illustrates one preferred embodiment's logical functionality, which can be implemented in various ways, i.e. the flowchart is not meant for characterizing the modular division of the implementing software.

First a set of verbs is presented to user in step 7-2 allowing user to select and accept the verb of his choice. Verbs are presented in ranking order. This ranking can at least partially be done according to weights 3-4. At the same time object parts that have associations with presented verbs can also be previewed, giving the user a taste of possible objective statements that are most easily expressed with the presented verb. This gives also better opportunity for those objective statements that are promoted to become spotted by the user. In the preferred embodiment the previewing of object parts is done according to the verb that is currently selected, and the selected verb is highlighted e.g. by pointer or some other emphasizing to be distinguished from other verbs.

If given user input does not match any verb in database DB1 (Figure 1), verbs from database DB2 can be retrieved. In order to minimize the time user has to wait, retrieving can also be done anticipatory, meaning that when it seems likely that there are not enough verbs to present that match user input, the retrieval is started.

In step 7-4, if user has accepted an existing verb he moves to object part selection stage. Otherwise he can continue to give input after no existing verb match given input so far and thus express a new word to the system. After user accepting his input, this new first part of objective statement is created in step 7-6. If the user expresses a new first part of objective statement not found from verb list, it is then saved to a database and usable for later selection. Preferably the new verb is not however mediated to other users from mediator database DB2 without mediator's representative's reviewing and acceptance, but to the user's personal database DB1 and possibly to some restricted user groups' databases.

After acceptance of verb, a set of object parts is presented to the user in step 7-8 to select and accept the object part of his choice. Like verbs, object parts can also be presented in ranking order. This ranking can at least partially be done according to weights 3-12 of objective statements 3-10. Likewise the weights for verbs, these weights can be separately calculated for e.g. different device types, user groups or users. At the same time services that have associations with presented objective statements, meaning the objective statements formed by already accepted verb and presented object parts, can also be previewed, giving the user a taste of possible services that are selectable with these objective statements.

In step 7-10, if the user has accepted already existing objective statement, he is offered a set of services in the service selection stage starting in step 7-30. Otherwise in step 7-14 if user accepted objective statement with already existing independent object part, but there did not exist an association between the verb and the object part, an association is formed and thus new objective statement created 7-24. Otherwise the user's input does not match any existing independent object part, in which case he is next in step 7-16 offered dependent object parts that match the input. These can also be offered in ranked order. The ranking is based at least partially to the information, in which place the dependent object part usually resides in the input i.e. those dependent object parts, which have not been usually used in the beginning of input for object part are offered lastly for that position and those dependent object parts, which are only usually used in the beginning are offered lastly for any other position. This can be done e.g. by maintaining proportions of the first word of the dependent object part being also the first word of the whole expressed object part vs. it being second or later word of the whole expressed

object part. This will ensure that in most cases user can form intelligible objective statements by choosing offered dependent object parts. While users can still express any kind of object parts, the non-intelligible ones will very likely be used very seldom and thus offered lastly, even in the case they are not filtered at the mediator. The secondary ranking criteria for dependent object parts are weights 3-8. These two ranking criteria can be balanced e.g. by dividing the object parts to two classes according to some threshold frequency of being used at the given position and then offering first the object parts from the class over the threshold ranked according to weight 3-8 and if these run out, offering object parts from the class below the threshold ranked according to the weight 3-8. As yet another ranking criteria, sequential-relations between dependent object parts can be formed such way, that statistics of given object part appearing after another are kept. This information can be initialized by using words of the used language and mining sequential information from large text corpuses.

It should be understood, that user can include more than one existing dependent object part as his input in step 7-16, i.e. after user including one dependent object part, more dependent object parts can be offered to user. Then primary ranking criteria can be the length of shared text between offered object part and ending of the input.

If in step 7-18 user has accepted existing dependent object part, new independent object part is formed in step 7-22 from the text accepted after the verb, meaning possibly one or more included object parts. This new object part is stored at local database and preferably transferred at some point also to mediator database. Like verbs and objective statements, object parts can be reviewed e.g. for grammar and/or private information at mediator before accepting them for mediation to other users. Independent object part can technically be implemented e.g. as string or associations between the dependent object parts which form it.

Otherwise in step 7-18 user has not found suitable dependent object part and continues to give input in step 7-20. The process ends when the user accepts what he has inputted, as he would have accepted an offered existing object part. Then a new dependent object part is created from all text that has been inputted and possibly included after verb.

After the creation of new independent object part, a new objective statement can be created 7-24 by associating the accepted verb and independent object part.

After creation of objective statement similitude-relations can be created between newly formed objective statement and existing ones.

If e.g. the new objective statement shares same dependent object parts with other objective statements, these objective statements possibly have something in common and similitude-relation can be created. Similitude-relation can be assigned strength of the relation and they can be used in order to search services from existing old objective statements that are somehow similar to the newly created one.

Because users on average try to express their objective shortly, and many objective statements are formed by users continuing an already existing objective statement, those object parts that are usually expressed first are on average more important considering the similitude. Object parts that are expressed lastly are on average specifying on their nature. These and other issues like the length of the shared object parts can be used to determine the strength of similitude-relation.

Because new objective statement is not yet associated with any services, a decision is made in step 7-26 and services can be searched 7-28 and/or associated by using the common service request 7-36. These can be done in parallel in different threads. The choice between these methods can be based e.g. on user preferences, network conditions and so on. The choice can also be different if user founds no suitable service and the decision is done again in step 7-34.

Because getting new service associations by common service request typically takes some time, the services are preferably made available to the user by promoting the new objective statement – service pair in step 7-40 after waiting them in step 7-38. This way the user can spot the new association whether he is still in service selection stage or not.

The similitude-relations can be used for searching services 7-28 that match the objective statement. The services can be searched via associations of the objective statements that have similitude-relation with the objective statement. Differentiating words that exist in new objective statement, but not in the old one can be used as keywords and searched from those services' descriptions that are associated with the old objective statement. The searched

services can be ranked according to the strength of the similitude-relation and matching of the keywords. To minimize the user waiting time, services can be first searched from objective statements – service pairs available in DB1, but they can also be searched from DB2.

Services can also be searched with e.g. general Internet search engine by using one or more words from objective statement. Because general search engines are primarily meant for finding general content, services found this way are on average worse in quality and can thus be ranked accordingly low. Searched services can be associated to the objective statement in order to prevent the need for searching the same services again. They can be distinguished from other associated services by e.g. lower weights or attached information field.

In order to personalize the system, weights 3-4, 3-8, 3-12, 3-16, 3-20 (Figure 3) can be separately calculated for individual users by combining their usage frequency information with others in such way that their usage information is emphasized. This can be done e.g. on user equipment, while overall usage frequency is best calculated on mediator.

It should be understood that the implementation of acceptance-commands for verb, objective statement and service could be different, e.g. a different or longer keystroke. This can help e.g. to more easily accept objective statement when user wants to use only the verb as objective statement.

Figure 5A illustrates one example according to the invention and its embodiments. In it Jill has taken photos by her mobile phone equipped with a camera and she likes to send them to her relatives.

When Jill opens the user interface UI and/or the application for requesting the service, she sees on the screen 5-22 some verbs. The verbs can be presented in ranking order according to the weights 3-4 that have been associated to the verbs like stated earlier. Thus these can be e.g. the verbs (Look, Listen, Send, Read, Record, Find) she has used most frequently and/or which all the users have used most frequently. Since Jill's purpose is to publish photos, and there are no suitable first parts for "Publishing" to be seen at the moment on the screen, she enters the first letter "P" of the verb "Publish" occurring to her. If she uses the predictive text input method familiar from mobile phones, the input is not at this phase unambiguous, because the "P" key can comprise all letters "7PQRS". Thus she can see on the next view 5-23 of the screen the available verbs that relate to any of the letters 7, p, q, r and s,

namely the verbs See, Quit, Send, Read, Publish, Save. The verbs can still be ranked according to the said weights.

In the next step she can scroll the pointer 5-18 four times down to select the verb she wants to pick. The content of the screen can scroll accordingly revealing more verbs according to the ranking based on the weights. After thus selecting the suitable verb "Publish", the screen 5-23 has updated to screen 5-24, where "Publish" is placed at the first position. Other verbs now seen on the screen (Save, Perform, Play, Pick, Remember) can be the next verbs from the ranked list of verbs after "Publish" and "Save" that conform to the given input.

Alternatively the user can enter the second letter of her word. Since this second letter "u" can belong to the key "8tuv", the list of verbs can be updated so that only those first parts that match both inputs are selectable, i.e. only those verbs are presented that comprise the first letter from the first key "7PQRS" and the second letter from the second key "8tuv". The list of these verbs is presented on the screen 5-25: Publish, Quit, Start, Pull, Push, Stuck. Now Jill has selected her verb "Publish", meaning that the pointer or other emphasizing element or accentuation, like inverse-style characters emphasize the verb.

After accepting the verb "Publish", the screen 5-24, 5-25 changes to show some object parts, second parts of the objective statement, view 5-26. The object parts are preferably offered in such order that independent object parts that have association with the accepted verb are offered first and if they run out, other independent object parts are offered. If also these run out, dependent object parts that are usually expressed right after the verb are offered and if these run out, other dependent object parts are offered. However, the user does not have to preferably do anything in order to switch between selecting independent or dependent object parts, but he/she can merely leaf through the offered selectable-parts e.g. by scrolling. In other words, the object part selection and acceptance stages 7-8, 7-10, 7-14, 7-16, 7-18, 7-20, 7-22, 7-24 constitute one logical selection stage from the user's perspective. When Jill has selected "photos", she has selected the objective statement comprising two parts. Prior Jill accepting the objective statement, this selection can however be specified even more as can be seen from the views 5-27 and 5-28, where Jill can select that she wants to publish "photos of a person" and that the person is "John Jr". This can be done e.g. by Jill using a key that is dedi-

cated to inclusion-command, that includes e.g. a next character, word or larger part of currently selected selectable-part to user input as if the user had inputted the character(s).

The last two views 5-27 and 5-28 give an example of how hyperonyms in objective statements can be substituted with personal information. This can be implemented by stating that given word(s) of object part constitute a hyperonym, and preferably defining the type of information by which it can be substituted. This can be made together with mentioned filtering of private information in such a way that names can be substituted by e.g. a pronoun or the word "person" and addresses e.g. by a word "location", "place" or "address". When user selects these objective statements, the substitution can be made to reverse direction by offering information of suitable type from the user's personal database(s).

Aside from enabling the use of personal information in objective statements, this two-way substitution also makes it possible to better rank this kind of objective statements based on their usage information. When offering the personal information like e.g. names, the information can also be presented in ranking order based e.g. on the frequency of use of said information in general, or the frequency of usage in given objective statement. Also other information associated to said personal information can be fetched from personal database and used then e.g. when calling the service. The fetching can be made automatically based on e.g. the service description. This way for example a WWW-postcard can be sent to the right email address of a person after user selecting his/her name, without need for further user annoyance.

The presented list of verbs and object part(s) of the objective statement can be e.g. in alphabetical and/or in weighted order, to be presented in some ranking order. Also the verbs and/or second parts and/or services can be listed as the more frequently used the higher it is ranked. As another possibility when the verb is entered object parts and/or services are presented on the screen.

In another example as shown in Figure 5B the user wants to read news by the mobile phone. Five text rows are reserved for the inputs on the screen. In the step 5-4 the user sees the verb "Read" and he enters the command "Down" e.g. by a key-press. Then the list comprising the first parts of the objective statements moves upward so that the verb, which was first disappears and a new verb comes into view 5-6. The other possibility is that the

pointer pointing to the pre-selected verb moves downward 5-8. When the pointer is at the end of the list more verbs can then be scrolled to become visible. Next 5-10, 5-12, 5-14 the user selects the first part of the objective statement "Read" e.g. by a key dedicated to acceptance function, after which the user sees the second part of the objective statement, "news", and can enter the command "down" twice to be able to reach "news". After this the user can proceed e.g. to three different views. On the first view 5-16, the user has accepted the object part "news" and thus the objective statement "read news" and he is offered a list of possible services to which the accepted objective statement refers. Based on the list the user can select and accept the service. On the second view 5-18, the user has selected and included the object part "news" as his input and he is offered a list of selectable-parts that stem from independent and dependent object parts as follows.

First texts that form an independent object part with the text "news", i.e. there exists independent object parts "news about sports" and "news about technology", can be offered. The user could have reached these by scrolling further, without including the text "news". Of these those independent object parts that form existing objective statement with the verb "Read" can be offered first. After these those independent object parts that start with text "news" but do not form existing objective statement with the verb can be offered.

After independent object parts have run out, those dependent object parts that are usually expressed after another object part can be offered. These can be ranked at least partially based on the weights 3-8. The weights can be based on overall usage information of many users but personalized for individual user. The user could travel a lot and thus "at airport" could have been used by him several times, personalizing the weight associated to it. Also other possible ranking criteria can be used. For example those object parts that have similitude-relation with independent object part that forms existing objective statement with the accepted verb can be ranked higher than those that do not. For example object part "about politics" could have similitude-relation with object part "about sports" based on the facts that they have same word and the word exists in same place of object parts.

It should be understood that the order of offering object parts here is only an example for keeping the objective statements intelligible and helping the user to express them effortlessly. This order can be varied in many ways.

On the third view 5-20 the user has proceeded directly to the ser-

vice. This could mean e.g. that the service was ranked as number one service and/or the service was associated e.g. via service description with the information that it should be offered immediately, without user further acceptance and the user has accepted this earlier e.g. via preferences-setting.

As still another examples can be mentioned: "buy new shoes", "turn sauna on" and "obtain patent".

As can be seen, relatively complicated function is easy to reach by entering relatively small amount of inputs with the help of the user interface UI according to the invention and its embodiments. What is even more important is that the user can find almost always the service in his own intuitive way. Since it is highly probable that many other users have also wanted the same service or the service, which relates closely to the wanted service, e.g. a service which automatically publishes given photos on Internet, and at least some of them would have expressed their objective as "publish photos" before Jill, this would have created the objective statement preferred also by Jill to the system according to the invention and its embodiments.

In Figure 8, a more detailed example of one possible implementation of getting user input is given. The flowchart illustrates one stage of input process, i.e. the acceptance of the verb or the object part. Possibly also a service name, and thus the service, can be accepted in the same manner.

In step 8-2, the stage is initialized and input for this current stage is empty string. This input can be defined as an stage-input, i.e. the stage-input forms verb or object part, when user accepts it and moves to the next stage.

In step 8-4 the list of selectable-parts offered to the user is updated according to stage-input received so far. For example in object part acceptance stage, selectable-parts can be offered in the order that has been described earlier. Furthermore, if the stage-input received so far constitutes one or more word(s) in addition to currently inputted word, but there does not exist selectable-parts that match earlier than currently inputted word, those selectable-parts that match only the currently inputted word can be offered. In Figure 7, step 8-4 relates to steps 7-8 and 7-16 in object part acceptance stage, to step 7-2 in verb acceptance stage and also possibly to stage 7-30, if acceptance of the service is done by selecting from a set of services viewed at once to the user. Another possibility for service selection is e.g. that services' textual descriptions are viewed one at time to the user and user either accepts the viewed service or views the next description.

After the list is updated, the selectable-parts are viewed to the user in step 8-10 and user input is waited.

In step 8-12, if user input has been a character, the character is added to stage-input in step 8-14. The input may also be a plurality of characters, like mentioned earlier, and in this case a list of possible inputs can be maintained instead of one possible stage-input.

Otherwise in step 8-16, if user has given include character –command by e.g. pressing cursor-right key, the next character of currently selected selectable-part is added to stage-input in step 8-18. The inclusion preferably sets the above-mentioned list of possible inputs discarding those possibilities, which do not match the currently included character(s).

The inclusion can also be done e.g. a word at a time, in steps 8-20, 8-22. Also other possible commands, like inclusion of all words currently shown can be implemented.

A reverse operation for inclusion of character is exclusion of character, steps 8-24, 8-26. Then the last character of current stage-input can be discarded. Like inclusion, exclusion can also be done e.g. a word at time, steps 8-28, 8-30.

If user gives acceptance-command, step 8-32, the input stage concludes 8-34. User can preferably also give stage backward –command 8-36 and move to previous stage of input process in step 8-40.

There are also other possible commands, which are not dealt with in Figure 8.

All possible ways of determining the objective should be expressible by user interface. To all objectives inputted by the user the system should respond in a sensible way, e.g. by providing the service that supports the inputted objective. The user interface of the invention and its embodiments solves the problem of finding a service by guiding the user to use objective statements already in the system but also making it possible for the user to use a totally new objective statement.

For the invention and its embodiments to work in the best way, as many as possible objective statements with sensibly associated services are needed. This requires process that supports producing of objective statements and their associating to services, and process to decide what objective statements and services linked thereto are available for users via the user interface UI.

As described above UI directs the user to find very efficiently those already to the system created services that match his objective. However, there may be a situation in which there is no objective statement that satisfies the need of the user. Also in this case the user interface UI can help the user to reach his objective. As stated earlier, common service request can be used for linking new services to objective statements. At the same time the new objective statement entered by the user is introduced to the system so that the database for objective statements is updated dynamically. This is important, because consumer researches that could be used instead of this invention to find out objectives and related services, could reveal only few objectives, which would create too limited databases for the purpose e.g. related to specific moments or happening.

The presence of the common service request is important e.g. because of usability and reachability, i.e. all possible intelligible objective statements can sooner or later be associated to suitable services, if such services exists. In order to obtain rapidly as good answers to common service requests as possible, processes can be used that delivers the request to as many potential answerers as possible.

The service can be the reply to the objective statement, which service can be formed directly so that the reply itself is the content service. Alternatively the reply can comprise a link to the service, and service description can be formed based on the reply.

One possible embodiment of the invention is to reward users by using tipping. This means that e.g. the user, who has given a hint, an answer or a reply to the common service request can be rewarded by money, time, a service etc. Common service request can comprise the objective statement, expiry time of the request and the amount of tip offered. The answer to the question can comprise the validity time of the answer, is tip asked from other users who express the same objective statement and could use the delivery of the answer as service, and the amount of tip asked. In the case of tipping, the amount of tip can be transmitted to the mediator, as well as the user who asked the question and the user who answered the question. It is to be noted that all information can be communicated via the mediator for privacy reasons. In order to further encourage tipping and answering mediator can without compromising the privacy of users tell they average behaviour when tipping, e.g. the average amount of tip or average amount of offered tip versus asked.

In the invention and its embodiments the user expresses his objective to the teleinformatic system and the system helps the user to reach his objective, whether this objective is a short-term objective or a long-term objective. In the invention and its embodiments objectives can be reached easily and rapidly by the system based on the usage of lots of users and thereby guiding users to services that are often required by some objectives. With the help of the method many different objectives can be expressed. Examples of objectives are: going to a movie with friends, remembering of wife's birthday, preserving health, buying a dream house and using a function of an apparatus. All these objectives and others can be reached from the same user interface in a convenient way.

The invention and its embodiments relates to method by which the user can easily and rapidly express any objective and obtain information to reach the objective. The method is like the use of a natural language without drawbacks of use of natural language like unnecessary dialogs. The invention and its embodiments further relates to method by which the user of teleinformatic system can with the help of user interface UI functioning same uniform user logic and the processes to maintain

- express easily and rapidly his objectives;
- to reach services related to objectives;
- ask for help to reach the objective;
- remember his objectives and tasks related thereto;
- obtain information on objectives which he can promote to reach at certain time, certain place and situation, e.g. by services linked to objectives;
- review of matching of different services to reach objectives so that other users can easily use the reviews;
- start cooperation with some other party, e.g. some other user to reach the objectives; and
- publish contents and services for other users.

The present invention can work as enabler for other objective-oriented methods. Top- and sub-relations can be formed between objectives to e.g. help users plan their life better. The information collected by the use of the invention can be used in various ways, as it gives objective-oriented view to services. Service providers can learn better, what are the objectives of people using their services. Keyword searches can be maid more objective-oriented.

The present invention and its embodiments provide a method and an apparatus for implementing the method so as to solve problems relating to user interfaces of prior art and natural language.

The present invention and its embodiments provide many advantages over the prior art. The present invention and its embodiments overcome many problems related to menus, commands and natural language. It saves time and keystrokes.

The user does not have to remember commands and attributes and their orders or the structure of menus to find out what he is looking for. To input a command is burdensome at least with input means of current mobile devices. This can be avoided. The user does not have to modify or to personalize menus. Also too deep hierarchies or altering menus are avoided, because the presentation of functions e.g. mobile services outside of apparatus do not need their own reserved place in the menu-hierarchy. Furthermore, the users are offered alternative ways, synonyms, to start the function. The definition "one size fits all" is avoided.

It will be obvious to a person skilled in the art that, as the technology advances, the inventive concept can be implemented in various ways. The invention and its embodiments are not limited to the examples described above but may vary within the scope of the claims.

Claims

1. A method of requesting a service in a network that supports multiple users, characterised by

- maintaining a verb list comprising several verbs (3-2);
- maintaining an object part list comprising several object parts (3-6);
- maintaining a service list indicating several services (3-14);
- maintaining a first association list comprising several first associations (3-10), each of which associates one verb in the verb list and one object part in the object part list;
- maintaining a second association list comprising several second associations (3-18), each of which associates one service in the service list and one first association;
- in response to receiving a beginning of a user input, selecting verbs from said verb list, such that the selected verbs match said beginning of the user input, and displaying the selected verbs to the user;
- selecting object parts such that each selected object part has an association with the user-accepted verb in the first association list, and displaying the selected object parts to the user;
- selecting services such that each selected service has an association with the combination formed by the user-accepted verb and the user-accepted object part, and displaying the selected services to the user;
- in response to receiving an acceptance of a service from the user, requesting the user-accepted service via the network.

2. A method according to claim 1, characterised in that the object parts are selected in response to receiving an acceptance of the verb from the user.

3. A method according to claim 1, characterised in that the object parts are selected without receiving an acceptance of the verb from the user.

4. A method according to any one of claims 1-3, characterised in that the services are selected in response to receiving an acceptance of the object part from the user.

5. A method according to any one of claims 1-3, characterised in that the services are selected without receiving an acceptance of the object part from the user.

6. A method according to any one of claims 1-5, characterised in

that comprising maintaining a first probability (3-4) for the verbs (3-2) in the verb list and displaying the selected verbs in order of decreasing first probability.

7. A method according to any one of claims 1-6, characterised by comprising maintaining a second probability (3-12) for the first associations (3-10) and displaying the selected object parts in order of decreasing second probability of first associations that contain the selected object parts.

8. A method according to claim 7, characterised by comprising maintaining a third probability (3-20) for the second associations (3-18) and displaying the selected services in order of decreasing second probability of second associations that contain the selected services.

9. A method according to any one of claims 1-8, characterised in that there are one or more specifiers (6-6) associated with some of the object parts (6-4).

10. A method according to any one of claims 1-9, characterised by comprising maintaining the first probability from several terminals and distributing the first probability among the several terminals.

11. A method according to any one of claims 1-10, characterised in that after displaying verbs or object parts, keeping one verb or object part highlighted according to the user selection and giving means to the user to accept the currently highlighted verb or object part.

12. A method according to any one of claims 1-11, characterised in that in response to receiving a beginning of the user input of a verb, prior the user accepting a verb from said verb list, selecting object parts such that each selected object part has an association with the currently highlighted verb in the first association list, and displaying the selected object parts to the user.

13. A method according to any one of claims 1-12, characterised in that in response to receiving an acceptance of a verb and beginning of the user input of an object part, prior the user accepting an object part, selecting object parts from said object part list, such that the selected object parts match said beginning of the user input of an object part, and selecting services such that each selected service has an association with the currently highlighted object part in the second association list, and displaying the selected services to the user.

14. A method according to any one of claims 1-13, characterised by in response to the user accepting the verb and the object part, delivering the

first association to the second user via the network and in case the second user forming the second association, delivering information about said second association to a mediator for adding it into maintained a second associations list in the mediator and delivering information about said service to the first user.

15. A method according to any one of claims 1-14, characterised in that after the user accepting object part, one or more second association(s) are formed by searching descriptions associated to services for words extracted from said object part.

16. An apparatus for requesting a service in a network that supports multiple users, characterised in that the apparatus comprises

- a verb list comprising several verbs (3-2);
- an object part list comprising several object parts (3-6);
- a service list indicating several services (3-14);
- a first association list comprising several first associations (3-10), each of which associates one verb in the verb list and one object part in the object part list;
- maintain a second association list comprising several second associations (3-18), each of which associates one service in the service list and one first association;
- a routine for selecting verbs from said verb list in response to receiving a beginning of a user input, such that the selected verbs match said beginning of the user input, and displaying the selected verbs to the user;
- a routine for selecting object parts such that each selected object part has an association with the user-accepted verb in the first association list, and displaying the selected object parts to the user;
- a routine for selecting services such that each selected service has an association with the combination formed by the user-accepted verb and the user-accepted object part, and displaying the selected services to the user;
- a routine for requesting the user-accepted service via the network in response to receiving an acceptance of a service from the user.

17. An apparatus according to claim 16, characterised in that, the apparatus is provided in a user equipment.

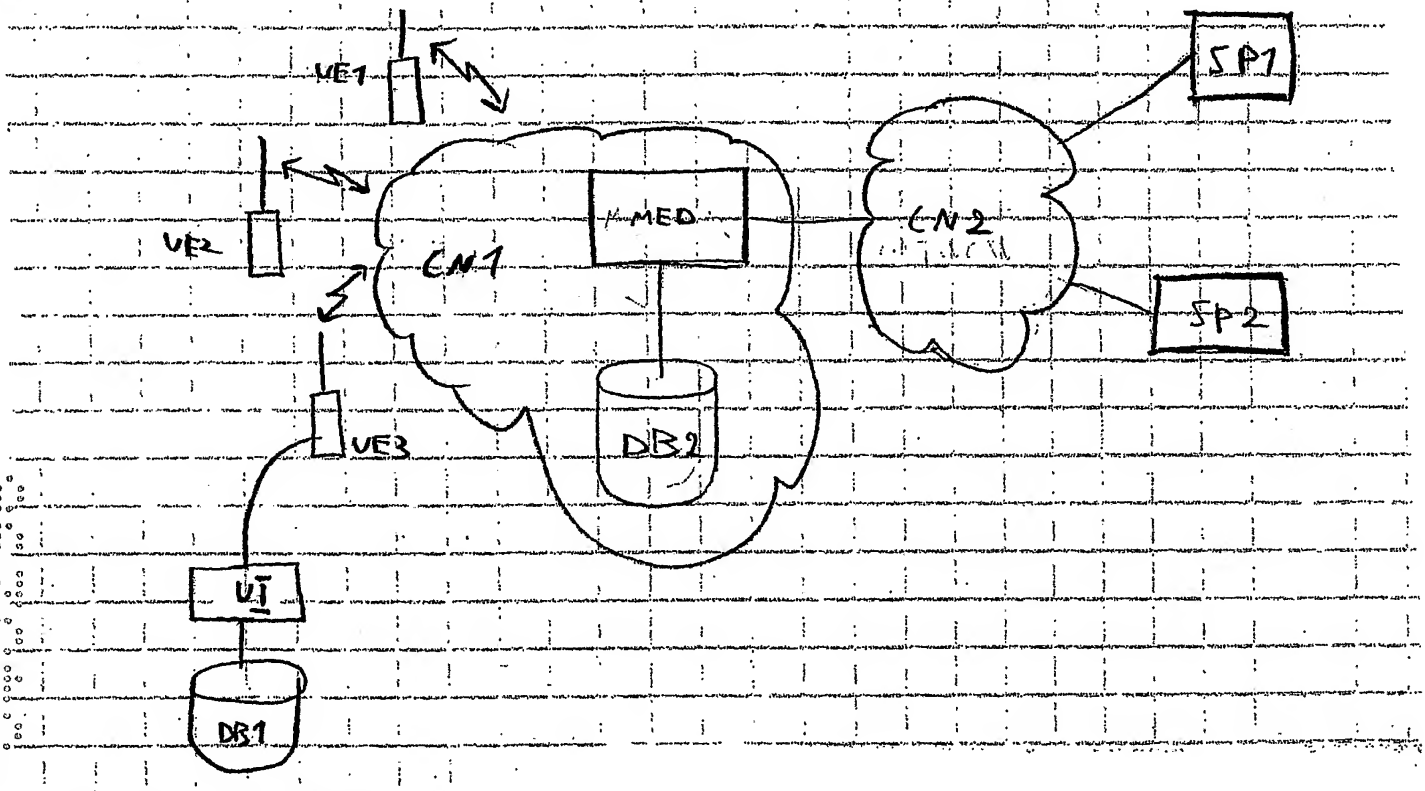
18. An apparatus according to claim 16, characterised in that, the apparatus is provided in a network element.

Abstract

The invention relates to a method and an apparatus of requesting a service from a communications network. In the method the following steps are to performed: generating an objective statement in a user equipment; communicating the objective statement from the user equipment to a mediator unit; comparing the objective statement to a list of objective statements in the mediator unit; establishing the service based at least partly on the comparison; and providing the service to the user of the user equipment.

(Figure 4)

FIG_1



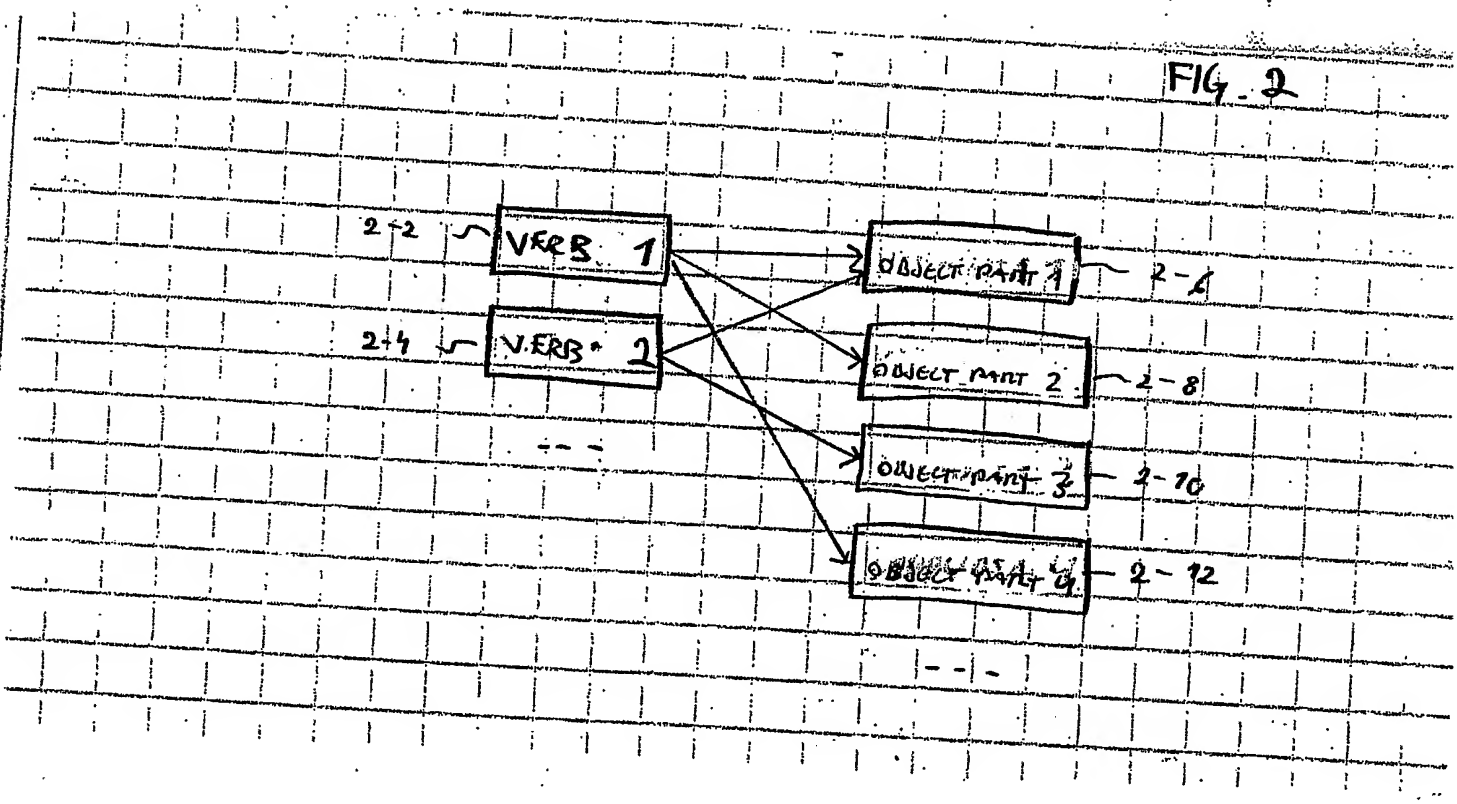

2-2
VERB 1
2-4
VERB 2
OBJECT PART 1
2-6
OBJECT PART 2
2-8
OBJECT PART 3
2-10
OBJECT PART 4
2-12

FIG. 2

FIG. 3

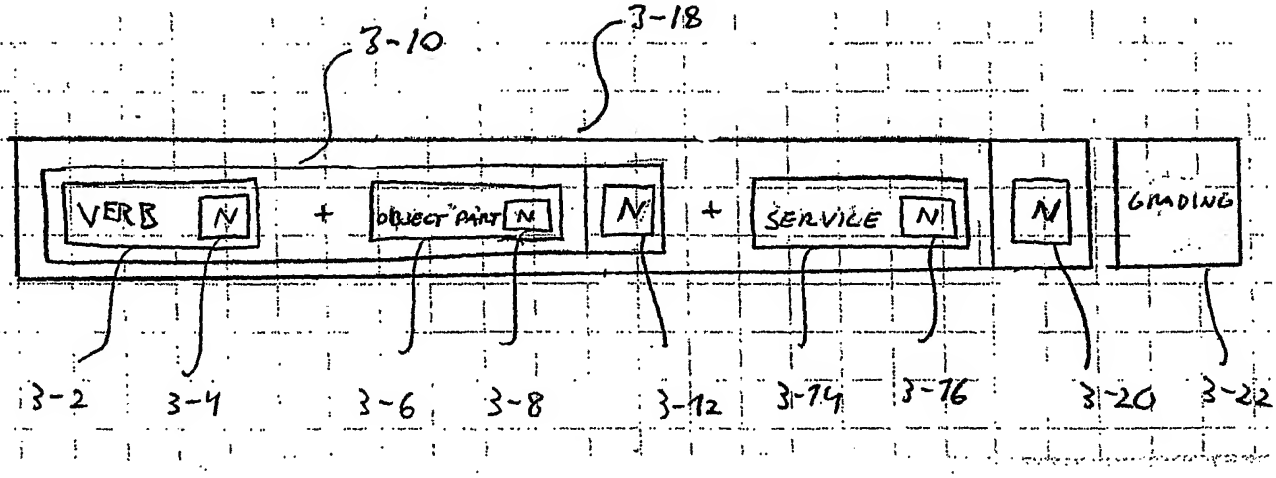

3-10
3-18
VERB
N
+
OBJECT PART
N
N
+
SERVICE
N
N
GRADING
3-2
3-4
3-6
3-8
3-12
3-14
3-16
3-20
3-22

FIG. 4

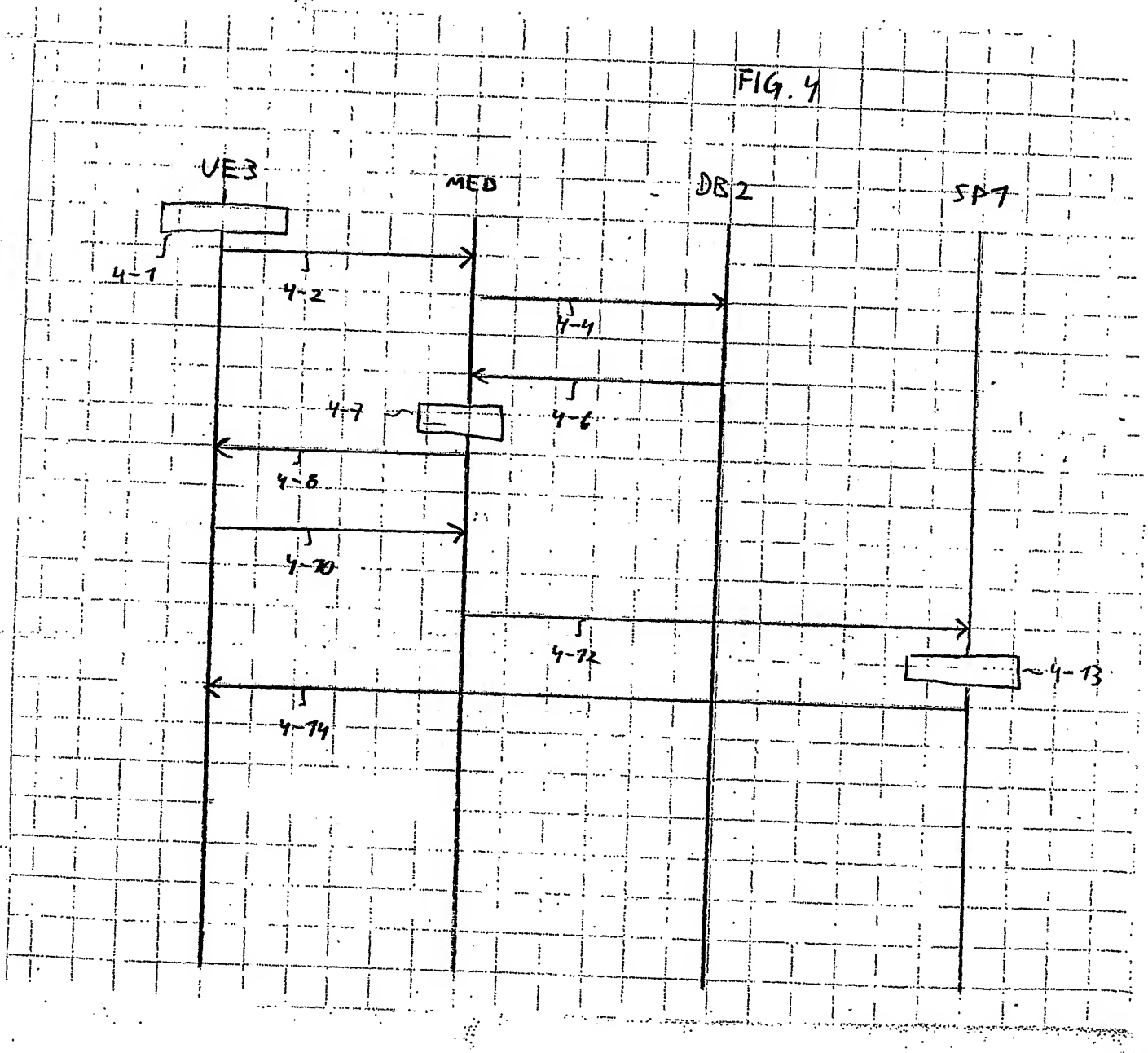


FIG. 54

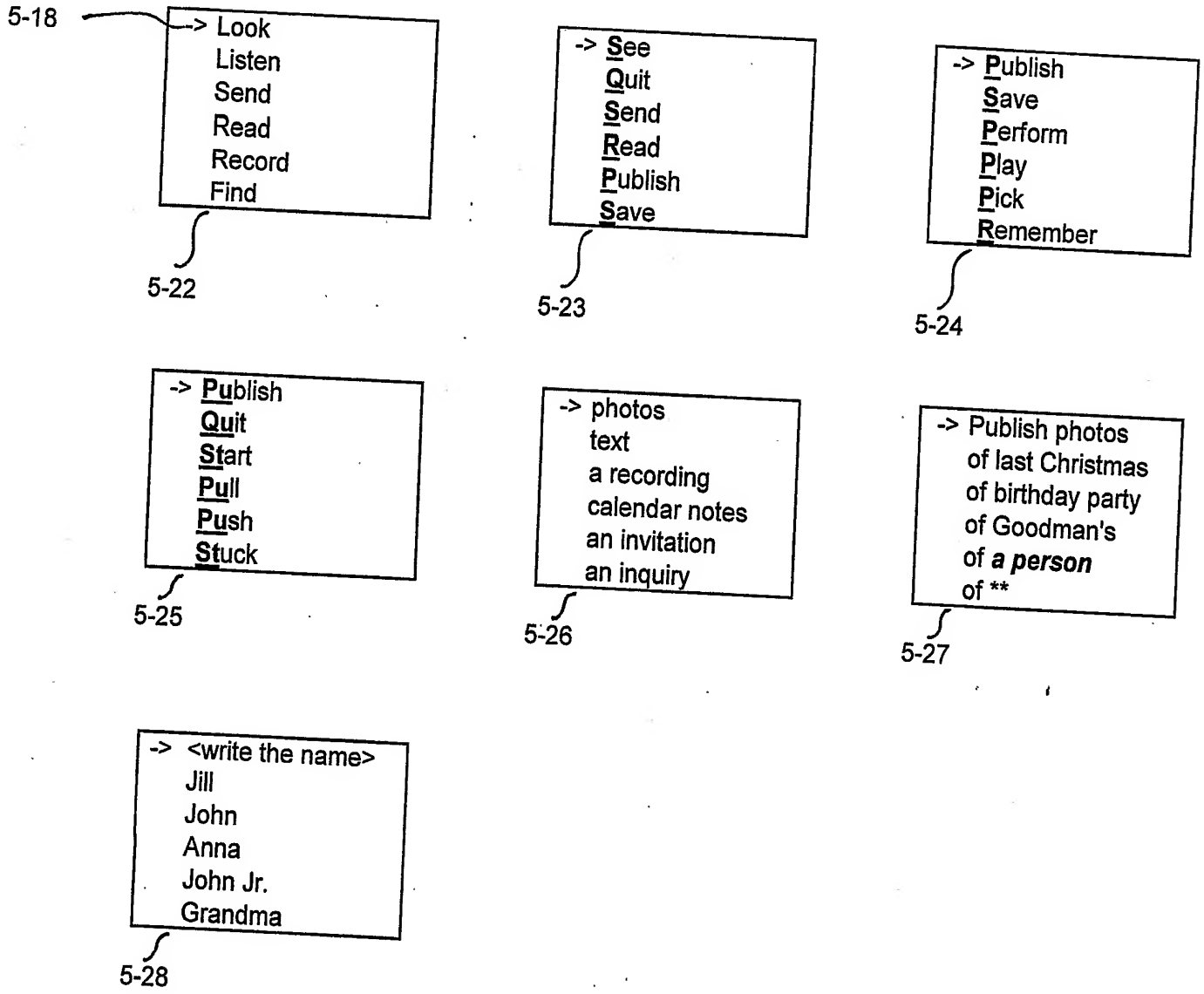
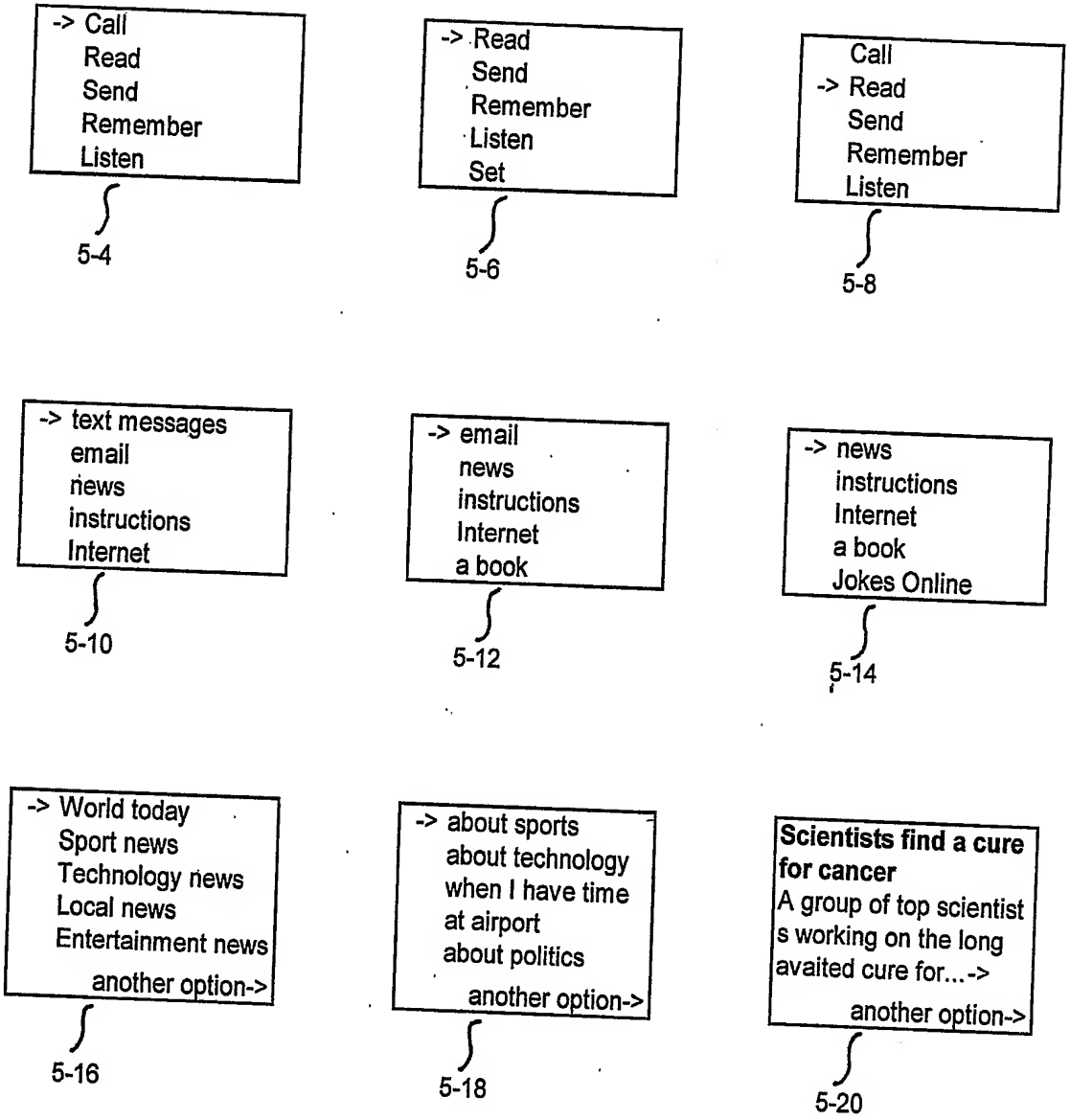

5-18
-> Look
Listen
Send
Read
Record
Find
5-22
-> See
Quit
Send
Read
Publish
Save
5-23
-> Publish
Save
Perform
Play
Pick
Remember
5-24
-> Publish
Quit
Start
Pull
Push
Stuck
5-25
-> photos
text
a recording
calendar notes
an invitation
an inquiry
5-26
-> Publish photos
of last Christmas
of birthday party
of Goodman's
of a person
of **
5-27
-> <write the name>
Jill
John
Anna
John Jr.
Grandma
5-28

FIG.5B


-> Call
Read
Send
Remember
Listen
5-4
-> Read
Send
Remember
Listen
Set
5-6
Call
-> Read
Send
Remember
Listen
5-8
-> text messages
email
news
instructions
Internet
5-10
-> email
news
instructions
Internet
a book
5-12
-> news
instructions
Internet
a book
Jokes Online
5-14
-> World today
Sport news
Technology news
Local news
Entertainment news
another option->
5-16
-> about sports
about technology
when I have time
at airport
about politics
another option->
5-18
Scientists find a cure for cancer
A group of top scientist s working on the long avaited cure for...->
another option->
5-20

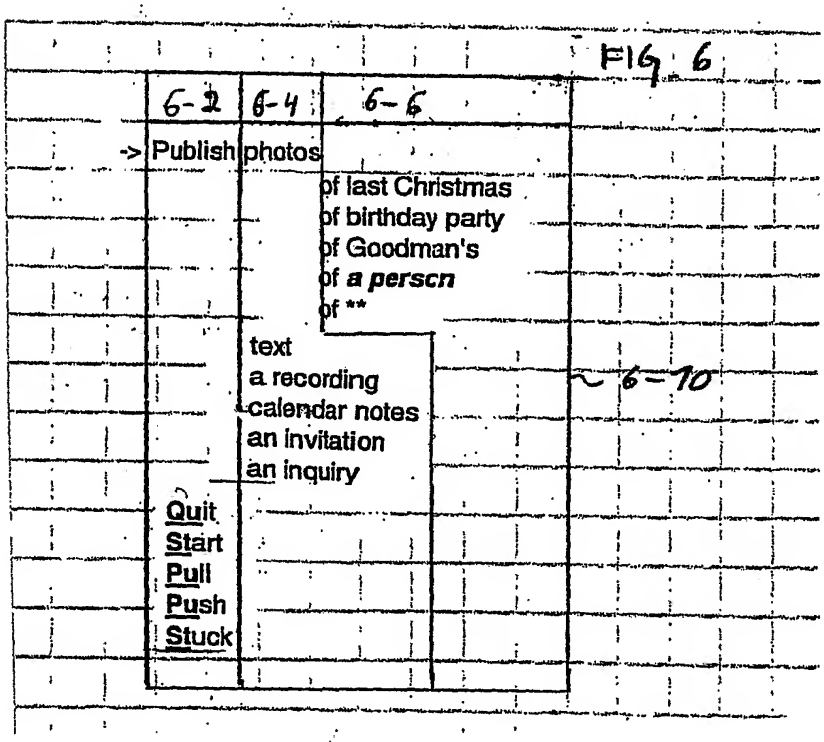


FIG. 6
6-2
6-4
6-6
-> Publish photos
of last Christmas
of birthday party
of Goodman's
of a persen
of **
text
a recording
calendar notes
an invitation
an inquiry
~ 6-10
Quit
Start
Pull
Push
Stuck

FIG. 7

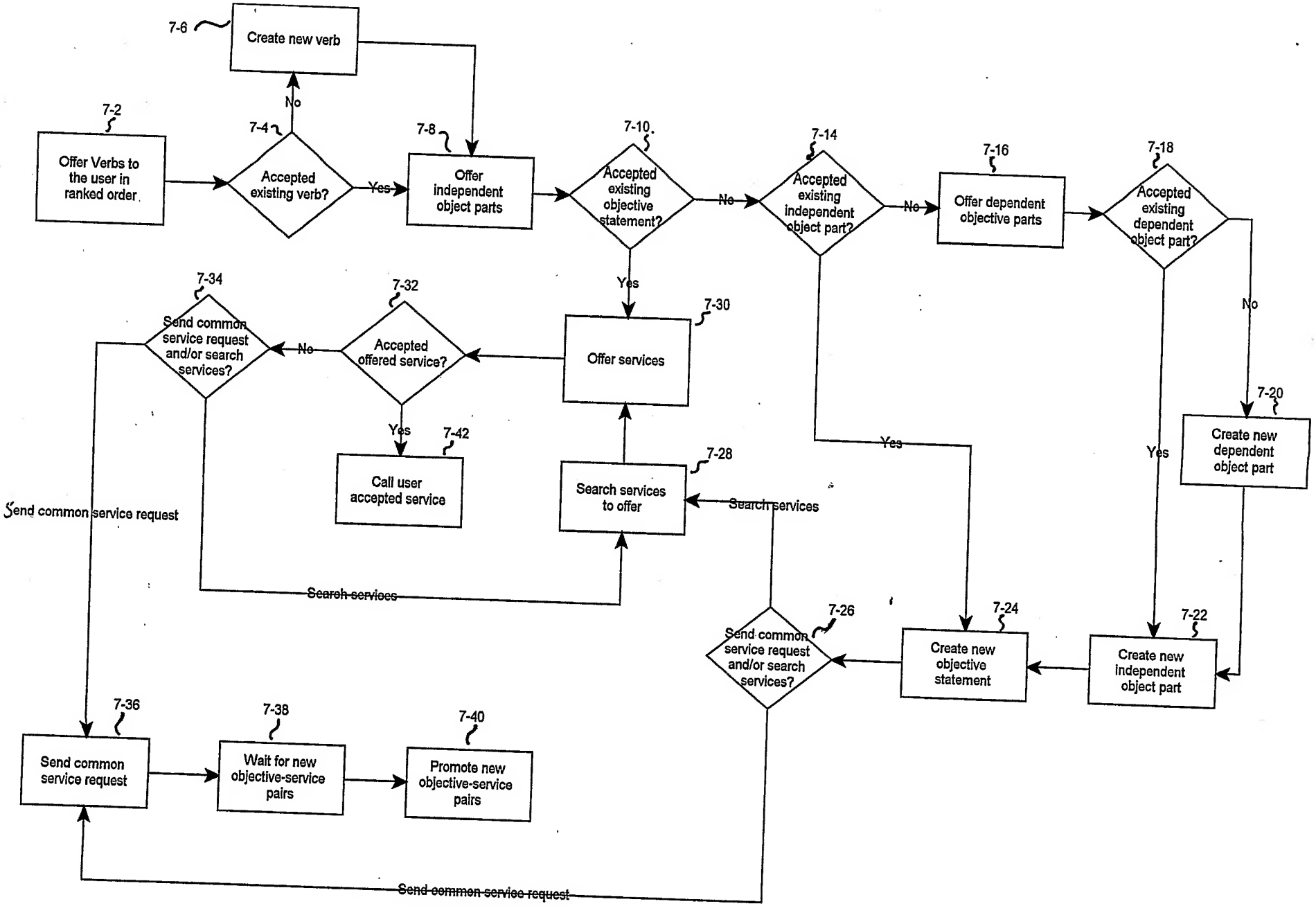
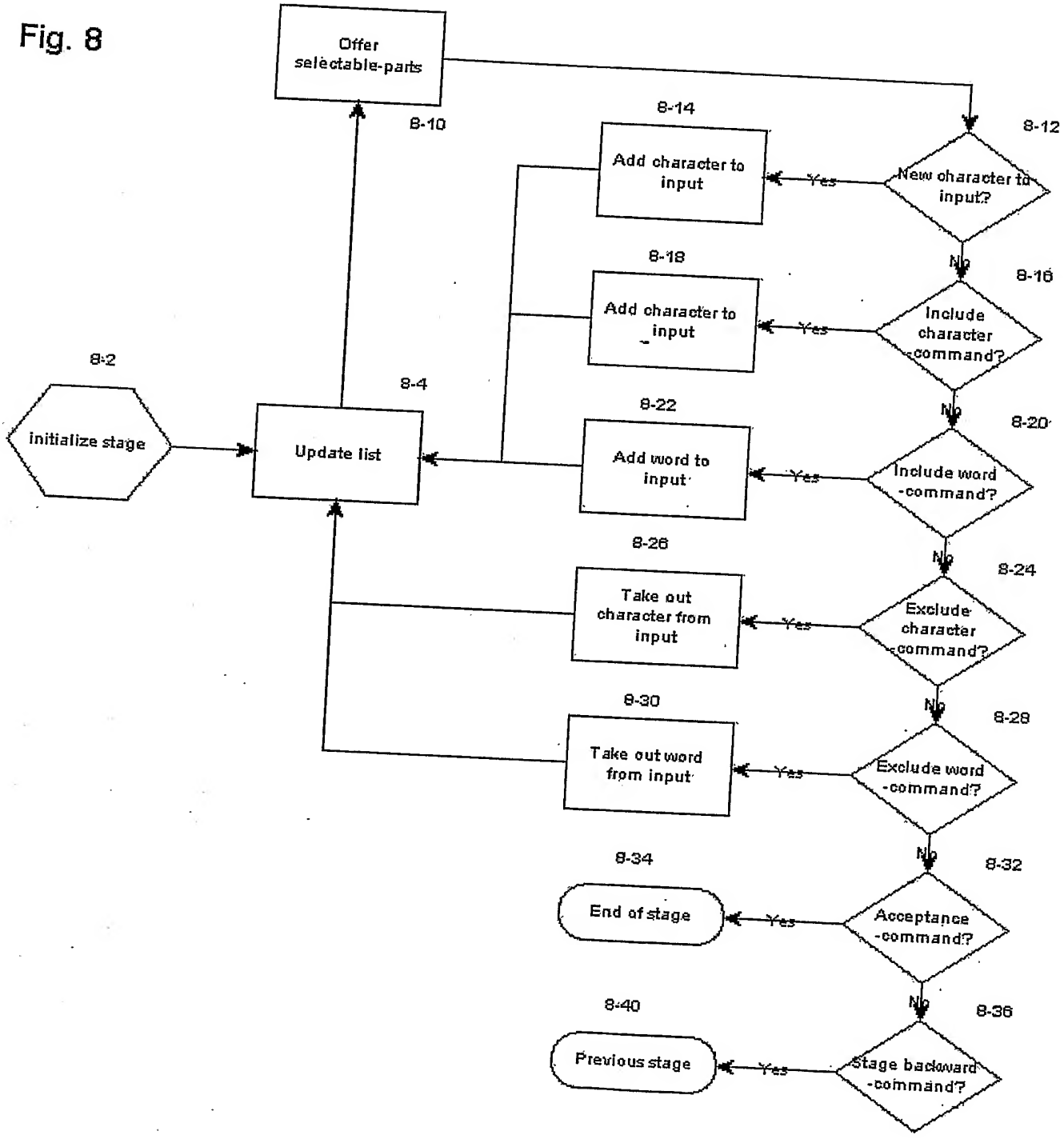

7-6
Create new verb
No
7-2
Offer Verbs to the user in ranked order
7-4
Accepted existing verb?
Yes
7-8
Offer independent object parts
7-10
Accepted existing objective statement?
No
7-14
Accepted existing independent object part?
No
7-16
Offer dependent objective parts
7-18
Accepted existing dependent object part?
No
7-20
Create new dependent object part
Yes
Yes
7-30
Offer services
7-34
Send common service request and/or search services?
No
7-32
Accepted offered service?
Yes
7-42
Call user accepted service
7-28
Search services to offer
Search services
Send common service request
Search services
Yes
7-26
Send common service request and/or search services?
7-24
Create new objective statement
7-22
Create new independent object part
7-36
Send common service request
7-38
Wait for new objective-service pairs
7-40
Promote new objective-service pairs
Send common service request

Fig. 8


Offer selectable-parts
8-10
8-12
New character to input?
Yes
8-14
Add character to input
No
8-16
Include character -command?
Yes
8-18
Add character to input
No
8-20
Include word -command?
Yes
8-22
Add word to input
No
8-24
Exclude character -command?
Yes
8-26
Take out character from input
No
8-28
Exclude word -command?
Yes
8-30
Take out word from input
No
8-32
Acceptance -command?
Yes
8-34
End of stage
No
8-36
Stage backward -command?
Yes
8-40
Previous stage
8-2
initialize stage
8-4
Update list